We claim:

1. A method of reducing the sulfur content of a catalytically cracked petroleum fraction, which comprises catalytically cracking a petroleum feed fraction containing organosulfur compounds at elevated temperature in the presence of a cracking catalyst and a product sulfur reduction catalyst which comprises a porous molecular sieve having a metal component which is within the interior pore structure of the molecular sieve and which comprises a metal in an oxidation state greater than zero, to produce liquid cracking products of reduced sulfur content.

2. A method according to claim 1 in which the cracking catalyst comprises a large pore size zeolite.

3. A method according to claim 2 in which the large pore size zeolite comprises a faujasite.

4. A method according to claim 1 in which the product sulfur reduction catalyst comprises a large pore size or intermediate pore size zeolite as the molecular sieve component and, as the metal component, at least one metal of Period 3, Groups Groups 5, 8, 9 or 12 of the Periodic Table.

5. A method according to claim 4 in which the large pore size zeolite comprises zeolite USY.

6. A method according to claim 4 in which the large pore size zeolite comprises zeolite beta.

7. A method according to claim 4 in which the intermediate pore size zeolite comprises zeolite ZSM-5 or MCM-49.

8. A method according to claim 4 in which the molecular sieve component has an alpha value of at least 10.

9. A method according to claim 4 in which the product sulfur reduction catalyst comprises a USY zeolite having a UCS of from 2.420 to 2.455 nm, an alpha value of from 0.2 to 300 and a bulk silica:alumina ratio of at least 5.0 as the molecular sieve component and, as the metal component, at least one of zinc or vanadium in an oxidation state greater than zero.

10. A method according to claim 1 in which the sulfur reduction catalyst is a separate particle additive catalyst.

11. In a fluid catalytic cracking process in which a heavy hydrocarbon feed comprising organosulfur compounds is catalytically cracked to lighter products by contact in a cyclic catalyst recirculation cracking process with a circulating fluidizable catalytic cracking catalyst inventory consisting of particles having a size ranging from about 20 to about 100 microns, comprising:

(i) catalytically cracking the feed in a catalytic cracking zone operating at catalytic cracking conditions by contacting feed with a source of regenerated cracking catalyst to produce a cracking zone effluent comprising cracked products and spent catalyst containing coke and strippable hydrocarbons;

(ii) discharging and separating the effluent mixture into a cracked product rich vapor phase and a solids rich phase comprising spent catalyst;

(iii) removing the vapor phase as a product and fractionating the vapor to form liquid cracking products including gasoline,

(iv) stripping the solids rich spent catalyst phase to remove occluded hydrocarbons from the catalyst,

(v) transporting stripped catalyst from the stripper to a catalyst regenerator;

(vi) regenerating stripped catalyst by contact with oxygen containing gas to produce regenerated catalyst; and

(vii) recycling the regenerated catalyst to the cracking zone to contact further quantities of heavy hydrocarbon feed,

the improvement which comprises

reducing the sulfur content of a the gasoline portion of the liquid cracking products, by catalytically cracking the feed fraction at elevated temperature in the presence of a product sulfur reduction catalyst which comprises a porous molecular sieve having a metal component which is within the interior pore structure of the molecular sieve and which comprises a metal in an oxidation state greater than zero, to produce liquid cracking products of reduced sulfur content.

12. A method according to claim 11 in which the cracking catalyst comprises a matrixed faujasite zeolite.

13. A method according to claim 12 in which the product sulfur reduction catalyst comprises a large pore size or intermediate pore size zeolite as the molecular sieve component and, as the metal component, a metal of Period 3, Groups 5, 8, 9 or 12 of the Periodic Table.

14. A method according to claim 13 in which the large pore size zeolite of the product sulfur reduction catalyst comprises zeolite USY.

15. A method according to claim 14 in which the product sulfur reduction catalyst comprises a USY zeolite having a UCS of from 2.420 to 2.455 nm, an alpha value of from 0.2 to 300 and a bulk silica:alumina ratio of at least 5.0 as the molecular sieve component and, as the metal component, a metal in an oxidation state greater than zero selected from zinc or vanadium.

16. A method according to claim 11 in which the molecular sieve component has an alpha value of at least 0.2.

17. A method according to claim 11 in which the sulfur reduction catalyst is a separate particle additive catalyst.

18. A method according to claim 17 in which the cracking catalyst comprises zeolite USY and the separate particle additive catalyst comprises zeolite USY.

19. A method according to claim 11 in which the gasoline product of reduced sulfur content is a gasoline boiling range fraction which has a sulfur content lower than that achieved in the absence of the product sulfur reduction catalyst.

20. A fluidizable catalytic cracking product sulfur reduction additive catalyst for reducing the sulfur content of a catalytically cracked gasoline fraction during the catalytic cracking process, which comprises fluidizable particles having a size ranging from about 20 to about 100 microns of USY zeolite having a UCS of from 2.420 to 2.455 nm, an alpha value of from 0.2 to 300 and a bulk silica:alumina ratio of at least 5.0 which contains within the interior pore structure of the zeolite a metal component which comprises at least one of iron, cobalt or vanadium in an oxidation state greater than zero.

21. A fluidizable catalytic cracking product sulfur reduction additive catalyst according to claim 20 which contains from 0.2 to 5 weight percent, based on the weight of the zeolite, of the metal component.

22. A fluidizable catalytic cracking product sulfur reduction additive catalyst according to claim 21 which comprises at least one of iron, cobalt or vanadium and zinc as the metal component.

23. A fluidizable catalytic cracking product sulfur reduction additive catalyst according to claim 21 in which the metal component has been introduced into the zeolite as an exchanged cationic species within the zeolite pores.

24. An integrated fluidizable catalytic cracking/product sulfur reduction catalyst for cracking a heavy hydrocarbon feed to produce liquid cracking products including gasoline and reducing the sulfur content of the catalytically cracked gasoline fraction during the catalytic cracking process, which comprises fluidizable particles having a size ranging from about 20 to about 100 microns of USY zeolite having a UCS of from 2.420 to 2.455 nm, an alpha value from 0.2 to 300 and a bulk silica:alumina ratio of at least 5.0

which contains a metal component which comprises at least one of iron, cobalt and vanadium.

25. An integrated fluidizable catalytic cracking/product sulfur reduction catalyst according to claim 24 which contains from 0.1 to 5 weight percent, based on the weight of the zeolite, of the metal component.

26. An integrated fluidizable catalytic cracking product sulfur reduction catalyst according to claim 24 in which the metal component comprises zinc and at least one of iron, cobalt and vanadium.

27. A fluidizable catalytic cracking product sulfur reduction additive catalyst according to claim 24 in which the metal component has been introduced into the zeolite as an exchanged cationic species within the zeolite pores.